

GENERAL ORDER 2017-108 Amendment 1
Section 49 Oil and Gas Activities Act

Issued to:

ARC Resources Ltd.
1200, 308 - 4th Avenue, SW
Calgary, AB T2P 0H70

Attention: Cory Beliveau, Manager, Health, Safety, Environment & Regulatory

Order:

Pursuant to section 49(7) of the *Oil and Gas Activities Act* (the Act), I, Patrick Smook amend General Order 2017-108 issued on December 7, 2017 to ARC Resources Ltd. (ARC) as follows:

1. Item 1 is deleted.
2. Item 2 is replaced in its entirety with the following: Develop a Noise Management Plan (Plan) and submit it for the review and approval of the Commission four weeks prior to resumption of hydraulic fracturing operations at ARGRES HZ DOE 03-15-080-15 (the operating area). The Plan must be submitted electronically to C&E@bcogc.ca. The Plan shall be prepared by a qualified professional and shall identify how ARC will ensure compliance with section 40 of the Drilling and Production Regulation. The Plan will include how nearby residents are consulted and notified with respect to operational noise as well as how excessive noise is defined and managed (including how noise issues are communicated to nearby residents).

Reasons:

I make this Order for the following reasons:

- I. Hydraulic fracturing operations at the operating area have ceased.
- II. ARC has advised the Commission that hydraulic fracturing operations will not resume until Q4 of 2018.
- III. As hydraulic fracturing operations at the operating area have ceased, continuous noise monitoring at the operating area is no longer needed.
- IV. The preparation and submission for approval of a Plan will demonstrate how ARC will comply with section 40 of the Drilling and Production Regulation for future hydraulic fracturing operations at the operating area.

Review and Appeal:

ARC may request a review of this order under section 70 of the Act by submitting a request for review to ogc.determinationreviews@bcogc.ca.

ARC may appeal this order to the Oil and Gas Appeal Tribunal under section 72 of the Act. The process for appeals may be found at www.ogat.gov.bc.ca and a notice of appeal may be sent to the Oil and Gas Appeal Tribunal at:

Oil and Gas Appeal Tribunal
PO Box 9425 Stn Prov Govt
Victoria, BC, V8W 9V1



Patrick Smook
Director, Compliance and Enforcement
Oil and Gas Commission

DATED AT Fort St. John, in the Province of British Columbia, this 22nd day of December 2017.

GENERAL ORDER 2017-108
Section 49 Oil and Gas Activities Act

Issued to:

ARC Resources Ltd.
1200, 308 - 4th Avenue, SW
Calgary, AB T2P 0H7

Attention:

Ms. Jody Wilson
Environment & Regulatory

Order:

Pursuant to section 49(1) (a) of the *Oil and Gas Activities Act* (the Act), I, Patrick Smook, order that ARC Resources Ltd. (ARC) must:

1. Immediately install continuous ambient noise monitoring equipment at or proximate to any residences within 500 metres of ARCRES HZ DOE 03-15-080-15 (the operating area). ARC will employ a qualified noise specialist for the review of data from these devices and submit a weekly summary of the monitoring results to the Commission via email to C&E@bcogc.ca; and
2. Develop a site specific Noise Management Plan (Plan) and submit it for the review and approval of the Commission by 16:00 hours on December 12, 2017 via email to C&E@bcogc.ca. The Plan shall be prepared by a qualified professional and shall identify how ARC will ensure compliance with section 40 of the Drilling and Production Regulations for the duration of activities having the potential to result in excessive noise. The Plan will include how nearby residents are consulted and notified with respect to operational noise as well as how excessive noise is defined and managed (including how noise issues are communicated to nearby residents). The Plan may include the results of previous studies as well as what steps can be taken within the control and ability of ARC for noise control and abatement.

Conditions:

A. This order shall remain in effect until amended or terminated in whole or in part by the Commission.

Reasons:

I make this order for the following reasons:

- i. ARC is the permit holder of the operating area.
- ii. Section 40 of the Drilling and Production Regulation (DPR) requires permit holders to ensure that operations at a well or facility do not cause excessive noise.
- iii. In 2009, the OGC established the British Columbia Noise Control Best Practices Guideline (BC Noise Guideline) for industry. The BC Noise Guideline provides permissible sound levels (PSL) as follows:
 - a. Daytime (07:00 to 22:00 hours) – winter – 55dBA
 - b. Night time (22:00 to 07:00 hours) – winter – 45dBA
 - c. Daytime (07:00 to 22:00 hours) – summer – 50 dBA
 - d. Night time (07:00 to 22:00 hours) – summer – 40 dBA
- iv. The OGC has received noise complaints from the public related to the operating area. OGC staff has responded to those noise complaints and recorded noise levels from an occupied residence within 360 meters of the operating area. The results of the noise readings are provided below.

Date	Time	Activity	PSL	Actual Decibels
June 7, 2017	12:25	Hydraulic Fracturing	50	55
June 23, 2017	11:00	Hydraulic Fracturing	50	48.7
June 23, 2017	22:15	Hydraulic Fracturing	40	46
July 25, 2017	11:38	Completions	50	40.5
September 19, 2017	15:12	Drilling	50	<50
November 27, 2017	15:50	Hydraulic Fracturing	55	57
November 29, 2017	23:08	Hydraulic Fracturing	45	60.5

- v. The measurements taken on June 7, June 23, and November 27 and 29 2017 demonstrate that ARC is operating above the PSLs set out in the BC Noise Guideline. The measurements taken the evening of November 29th are of particular concern.
- vi. On October 3, 2017, ARC completed a noise impact assessment (NIA) for the operating area and surrounding residences within 1.5 kilometers from the operating area. The results from the NIA show noise levels for ARC’s proposed well hydraulic fracturing significantly above the PSLs under the BC Noise Guideline. The NIA provided various options to reduce the noise levels but to date ARC has not fully implemented any of those options.

- vii. On November 26, 2017, ARC initiated well hydraulic fracturing on the operating area. This is a 24-hour activity.
- viii. On November 29, 2017, OGC staff met with representatives of ARC to discuss the noise complaints and what measures ARC has taken to reduce the noise.
- ix. On December 1, 2017, ARC was sent an email that stated the OGC's expectations that ARC would meet the PSLs contained in the BC Noise Guidelines.
- x. On December 2, 2017, at 01:10 hours, OGC staff took another noise reading at the occupied residence 360 metres from the operating area. That reading was 60.8 dBA and was 15.8 decibels above the PSL.
- xi. The noise resulting from ARC hydraulic fracturing a well in the operating area is above the PSLs set out in the BC Noise Guideline. Further, the noise has resulted in several complaints from the public.
- xii. I am of the opinion that the noise caused by ARC in the operating area is excessive and that ARC is therefore in contravention of section 40 of the Drilling and Production Regulation.

Review and Appeal

ARC may request a review of this order under section 70 of the Act by submitting a request for review to ogc.determinationreviews@bcogc.ca

ARC may appeal this order to the Oil and Gas Appeal Tribunal under section 72 of the Act. The process for appeals may be found at www.ogat.gov.bc.ca and a notice of appeal may be sent to the Oil and Gas Appeal Tribunal at:

Oil and Gas Appeal Tribunal
PO Box 9425 Stn Prov Govt
Victoria, BC V8W 9V1



Patrick Smook
Director Compliance & Enforcement
Oil and Gas Commission

DATED AT Fort St. John, in the Province of British Columbia, this 7th day of December, 2017